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Etude des effets d'une approche béhavioriste de l'enseignement sur le comportement d'une classe d'élèves mésadaptés socio-affectifs présentant de graves problèmes de discipline. Deux techniques ont successivement été expérimentées. Dans le premier cas, il s'agissait de promulguer des règles de comportement, d'ignorer les attitudes déviantes et de louanger les conduites positives. Dans la démarche suivante, une technique de renforcement s'ajoute à ces éléments: les élèves devaient se mériter par leur comportement positif un total de cent points leur permettant de visiter une ferme.

L'expérience a été effectuée sur une période de trois mois, à l'hiver 1974, à l'école polyvalente Howard S. Billings (Chateauguay). Le groupe visé était constitué de onze garçons de 13 à 16 ans, d'un quotient intellectuel entre 72 et 109. Plusieurs possèdent des handicaps physiques ou mentaux. L'enseignante en est à sa troisième année d'expérience. La classe a été observée 40 fois pendant des périodes de 45 minutes: d'abord en situation habituelle puis lors des deux expériences.

Des statistiques sur la fréquence des divers types de comportement de l'enseignant et de l'élève ont été produits. Les expériences ont amené une forte diminution des comportements négatifs dans la classe. En pourcentage, ils sont passés de 78% par période observée en situation normale à 22,1% puis à 7,8% lors des deux expériences. L'attitude de l'enseignante a également évoluée: la moyenne des réprimandes par période est passée de 5,2 à 1 puis à .2 alors que celle des récompenses est passée de .6 à 5,3 puis à 3. Les résultats témoignent de l'efficacité de l'approche béhaviorale.

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APPLYING BEHAVIOR MODIFICATION TECHNIQUES IN A CLASS OF EMOTIONALLY DISTURBED HIGH SCHOOL BOYS AT HOWARD S. BILLINGS REGIONAL [illegible] SCHOOL, CHATEAUGUAY, QUEBEC

John A. Ferris, Kristina Golden

April 1974

E D U Q 8170497

Applying Behavior Modification Techniques
in
A Class of Emotionally Disturbed High School Boys
at
Howard S. Billings Regional High School
Chateauguay, Quebec.

John A. Ferris,
Kristina Golden.
April, 1974.

PROTESTANT REGIONAL SCHOOL BOARD
OF CHATEAUGUAY VALLEY
75 ST-JEAN BAPTISTE BLVD.
CHATEAUGUAY - QUE.

INTRODUCTION

As increasing numbers of our high school pupils are assessed, diagnosed, categorized as "Emotionally Disturbed" and placed in special classes, our concern mounts about how to help these pupils to function and achieve according to their capabilities and intellectual potential.

Though as a group they are characterized by low academic achievement and serious behavioral problems, it is difficult to generalize further as Redl and Jocobson (1958) point out, the term emotionally disturbed is too broad to have practical meaning. Also, there is a great diversity of techniques, procedures, programmes and models, depending, to a considerable extent, on the various disciplines involved.

Our concern is to find procedures or techniques or combinations of these which are understandable to the teacher (Hewett, 1967), easily carried out in the classroom or facilities available, and which make the most effective and efficient use, possible, of our teachers and resource personnel.

We are further concerned that in programmes for these pupils there be a strong humanistic component. "That the child is valued for what is already inside him and is not seen from the perspective of a deficiency model (Knoblock, 1973)." We are concerned about the way the pupils feel about themselves as Glasser (1973) points out "the most important psychological concept relating to people is the way they look at themselves". We are also concerned that our pupils know that some adult(s) in the school really care about them.

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We are presently using as much group and individual counselling and therapy as our resources permit and a few teachers are using some Behavior Modification techniques. The extension of Behavior Modification by initiating formalized and structured programmes (group and individual) may well prove extremely valuable in helping our pupils, especially the emotionally disturbed. - Deibert and Harmon (1970) make a strong case for using Behavior Modification as a substitute for counselling and for therapy. However, we realize that we must not be preoccupied with labels but use a common sense approach which places the emphasis on the analysis of behavior, indeed the meticulous analysis of behavior problems almost dictates their solution.

It was within this framework and context that the following study, extending over a period of nearly three months, was attempted.

Selecting the Problem -

Since the beginning of the school year one of our classes of emotionally disturbed boys has exhibited a great deal of disruptive and inappropriate behavior, especially with certain teachers; however, the class could be fairly well controlled by other teachers using a strong authoritarian approach. This seemed to be an ideal situation in which to apply Behavior Modification techniques and one from which we might be able to demonstrate, not only the value of such procedures for this and other classes and problems, but at the same time help a group of students and assist teachers in maintaining classroom control.

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SUBJECTS AND SETTING -

Pupils -

The class was one of five special classes at H.S.Billings Regional High School. It was designated as a class for emotionally disturbed. It consisted of 11 boys with ages ranging from 13 years 5 months to 16 years 2 months and I.Q.s from 72 to 109. Four were Indians from the Caughnawaga Reserve, the remainder were whites from a low to middle class urban population. All had been diagnosed and categorized as socio-emotional deviation (a department of Education category) also most, in addition, have other disabilities such as, physical, retardation or learning disabilities.

After some preliminary behavior analysis and a consideration of personnel economy, it was decided to investigate the effects of operant conditioning on the class as a whole, in a regular classroom setting. Therefore, individual diagnosis is not included in the study.

Another reason for choosing a group study was the fact that very few similar studies have been reported. Though there are a great number of studies of Behavior Modification applied to numerous behaviors of individuals and classes in the elementary school, very few deal with high school classes (a study by McAllister, Stachawiak, Baer and Conderman, parallels in some respects the present study) especially for emotionally disturbed pupils.

The Teacher -

One young teacher (3 years experience, all of which was with exceptional children) was having considerable difficulty managing this class to which she taught science and social studies for a

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total of five periods every six days. She felt unable to control the class by strict authoritarian methods nor did she wish to do so. She was genuinely concerned, however, that she have good relationships with her pupils and that she provide the climate and structure necessary for optimum functioning and achievement. She agreed to participate in the study realizing that though it would involve a great deal of time and effort and even anxiety on her part, the study might prove very valuable for these and other pupils and teachers in the Special Education Department, it would help the Department Head to carry out certain responsibilities, and, in addition, it might help her to improve her own classroom management and teaching.

PROBLEM BEHAVIOR

General Description -

It was agreed that we should deal with a single group behavior (at least in the early stages); therefore, the disruptive behaviors of the class were analyzed during three forty-five minute periods to determine the most disruptive.

The following disruptive behaviors were defined, observed and rated.

Talking (verbalizing): - was defined as any audible vocal sound, except coughing, for which permission was not given; e.g. shouting to teacher and pupils, talking or whispering to self or neighbors, whistling, singing, etc.

Gross Motor: - defined as standing, walking around room, jumping, etc.

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Throwing: - or shooting objects in the air or along the floor.

Aggression: - Fighting, pushing, punching, pinching or similar forms of bodily contact.

Turning: - more than 90° in either direction unless for some legitimate purpose.

A frequency measure of these behaviors is shown in Table I. Because the talking behavior was by far the most disruptive, no further effort was made to define or analyse the other behaviors. The definition proposed for talking seemed to cover all aspects of this disruptive behavior necessary for our study.

TABLE NO. I

Behavior	Period I	Period II	Period III
Talking	78	91	88
Gross Motor	11	14	10
Throwing	3	3	1
Aggression	1	0	1
Turning	8	12	10

Incidence of behaviors for three forty minute periods.

Pre-baseline observations also revealed that the talking behavior, as well as other disruptive behavior, was caused essentially by nine of the boys and that two boys, rarely ever, caused any disruption. Of the other nine, the one with the highest I.Q., was the leader in nearly all class activities. Of the remaining eight, four seemed about equal in causing disruptions, the other four on the average, caused slightly fewer disruptions.

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Behavioral Objective

To completely stop talking out behavior with such a class of active boys would be very difficult, nor would it be desirable since a considerable amount of talking was due to enthusiasm about the lesson. Therefore, we had to consider a more realistic and practical behavioral objective, i.e. to greatly reduce the talking-out disruptive behavior (and hope there would be a carry-over to other disruptive behaviors) to a level where optimum learning could take place, in a friendly cooperative atmosphere and with a minimum of strain on the teacher. We hesitated to talk about the percentage of reduction we might hope for but felt that an average reduction of 50% from the first experimental condition, would be reasonably satisfactory.

Experimental Procedures

Two female graduates who had returned to high school for additional courses were trained. The general nature of the experiment was explained to them and the importance of their part in it. The talking behavior was defined, explained, and illustrated in classroom situations. Because they had both taken Child Care Courses they were very interested in the experiment. The book "Living with Children" was given them to read.

The teacher was given a pre-test on behavior modification techniques, terminology and definitions (see appendix I). She also read several books, book selections and research articles.

Baseline Observations

The class was observed during 40, one-minute intervals for each of 5, forty-five minute periods each six day cycle. The observers, (using a watch with a sweep second hand), recorded, by check marks

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on specially prepared forms (see figure I), the first instance of disruptive talkind for each interval, subsequent instances during any one interval were not recorded. From the total of recorded instances during each period the percentage of intervals during which inappropriate talking took place was calculated.

A frequency measure (total number of interruptions during the period) was taken during each of the first five baseline periods, of instances of disruptive talking, using a golf score counter. Also recorded during the ten baseline periods (and all subsequent periods) was the actual number of times the teacher used praise or reprimanded the pupils. Both praise and reprimands must have been addressed to the group as a whole or to individuals in the hearing of the entire group. (see fig. 2).

For Total Periods →

Min.	Date, A.M., P.M. Period, Subject	Date, A.M., P.M. Period, Subject	Date, A.M., P.M. Period, Subject	Date, A.M., P.M. Period, Subject	Date, A.M., P.M. Period, Subject
1	✓	✓	✓		✓
2					
3	✓		✓		✓
4		✓		✓	
5	✓				✓

For 40 Minutes ↓

Figure I
Partial Form for Recording Intervals of Inappropriate Talking .

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Date, A.M., P.M. Period, Subject	Praise Reprimand	✓ ✓ ✓
Date, A.M., P.M. Period, Subject	Praise Reprimand	✓ ✓ ✓
Date, A.M., P.M. Period, Subject	Praise Reprimand	✓ ✓ ✓ ✓ ✓
Date, A.M., P.M. Period, Subject	Praise Reprimand	✓ ✓ ✓ ✓ ✓

Figure 2 -
Partial Form for Recording
Instances of Praise and Reprimands

The reliability of the observers was checked by the Department Head during one pre-baseline and three baseline periods. Reliability was checked by subtracting the number of intervals during which there was no agreement between observers (Department Head and observer and observer and observer) from 40 and expressing the remainder as a percentage of the total, e.g. for disagreement on 4 intervals:

$$40 - 4 = \frac{36}{40} \times 100 = 90\%$$

Reliabilities varied between 85% and 92%; frequency measures were also checked and found to vary from 87% to 94%. Spot checks were made during later periods to insure that no significant changes were occurring in observer reliability.

During the baseline periods the teacher made no changes in her usual teaching or management procedures. Analysis of disruptive talking behaviors during these periods showed a high noise level for most of each period. The teacher had to speak very loudly to be heard. Requests for pupils to raise their hands etc. were usually ignored. Pupils who did raise their hands were often ignored by the teacher

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because she was attending to those who were shouting the loudest. The teacher frequently reprimanded the pupils and class but seldom praised them. There were numerous instances where inappropriate behavior was reinforced and appropriate behavior was not.

The teacher seldom sat down or relaxed but worked very hard throughout each period. For a considerable part of each period the pupils displayed a great deal of interest and enthusiasm in the subjects because the lessons were well planned and prepared and interesting audio-visual aids were used.

In the early pre-baseline and baseline periods the presence of the Department Head, in the classroom, had a noticable quieting effect on the pupils but this decreased as he spent more and more time in the room.

During period six a 15-minute film was shown - it seemed to have little effect on the overall percentage of intervals with disruptive talking. During period nine a 15-minute video tape was taken of the class. There was no noticeable change in behavior during the taping. A study of the video tape confirmed the extent of disruptive behaviors and made the teacher more aware of them.

The observed baseline data is shown in Table No. 2. and this is represented graphically in Figure 3, along with graphs of the data from intervention No. 1 and Intervention No. 2.

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TABLE NO. 2.

Baseline Data for 10 Forty Minute Period

Dates, A.M. or P.M., Subjects	Observation Periods	% of intervals of inappropriate talking per Period	Frequence of inappropriate talking	Reprimands	Praise
1/2/74,A.M. sc	1	70%	72	5	0
4/2/74,P.M. ss	2	83%	92	6	0
5/2/74,A.M. sc	3	88%	88	2	0
5/2/74,P.M. ss	4	65%	78	5	1
8/2/74,P.M. ss	5	63%	85	2	0
11/2/74,A.M.sc	6	68%	-	11	2
12/2/74,P.M.ss	7	95%	-	7	1
12/2/74,A.M.sc	8	83%	-	7	1
12/2/74,P.M.ss	9	90%	-	5	1
19/2/74,P.M.ss	10	75%	-	2	0
MEAN		78%	83	5.2	.6

sc = science ss = social studies

A.M. = morning periods

P.M. = afternoon periods

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Solution Design -

The overall solution design consisted of two consecutive and different reinforcement procedures, Intervention I and Intervention 2, extending over nine and eleven periods respectively and both dealing with the same behavior problem.

Intervention I -

Intervention I consisted of the three basic techniques; stating rules, praising good behavior and ignoring inappropriate behavior; these three, when used in combination proved very effective in many behavior modification studies (Madsen, Becker and Thomas, 1968; Becker, Engelmann, Thomas, 1971; Deibert and Harmon, 1970; Thomas, Becker and Armstrong, 1968; O'Leary and Becker, 1968; Graubard, 1969; Axelrod, 1971; McAllister, Stachowiak, Baer, Conderman, 1969; and others). No significant changes were made in the courses taught, course content, lesson plans, materials or audio-visual aids.

The following steps were taken in preparations for the implementation of Intervention I:

1) A few explicit rules for talking behavior were selected, e.g. no one could talk when the teacher or a pupil was reading to the class. The rules were to be printed on the blackboard prior to each period and they were to be very carefully explained at the beginning and before each different activity of each class period so that there could be no doubt about their meaning.

2) The teacher reviewed instructions on praising and ignoring and the difficulties were discussed. It was agreed, that in the beginning, every opportunity should be sought for praising work or

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behavior and that praise should be given to the class as a whole, or to individuals providing the class could hear it. The teacher agreed to keep her own record of instances of praise (in addition to the observers' record). Pupils must be ignored to the extent that they were non-existant; looking at them, changing facial expressions, physical nearness, etc. must be avoided.

In regards to praise the following comments by Barbara Bateman (1971) are helpful and significant: "A very first rule for the teacher who wants more pleasing and efficient behavior management is catch the youngster being good. The teacher who tallies her own rate of 'praises' and 'blames' and then makes the effort to use at least ten praises for every blame will be more than rewarded".

3) The teacher was asked to speak less, to speak slower than usual and to speak softly.

4) The Department Head taught a demonstration lesson to illustrate the techniques of: stating rules, praising and ignoring.

Observations Recording Graphing -

The same observers, forms and procedures were used as for the Baseline periods. A frequency count of disruptive talking was taken every period. Data from Intervention I was included in table 3 and the the graph in figure 3, along with the data and graphs from the Baseline and Intervention 2 periods.

Implementation -

Intervention I was introduced on period ii February 21, with very satisfactory results. Though the observers had not been warned beforehand, they realized that conditions had changed greatly. At

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first the pupils were noisy but as the teacher waited, saying nothing, they became quiet and were quickly praised for being so attentive. Praise was used 6 times or as many times as during the ten Baseline periods together. There were 0 reprimands. Disruptive talking dropped from an average of 78% and a high of 95% (during Baseline) to 40%; and even more significant is the fact that the frequency dropped from an average of 83 to 16.

The intervention was discussed with the observers and they were of the opinion that during this first period of Intervention I the pupils seemed puzzled, a bit confused and somewhat shaken. It was at this time that the pupils became curious about what was being recorded so they were shown the record form and given an explanation. They were quite impressed and concerned about the change in their talking behavior. Their interest in improving it continued throughout the study.

The reliability and accuracy of the observers continued to be checked; however, as the instances of disruptive talking decreased, their task became easier and the teacher was able to monitor many of the observations and compare her results with the observers. The teacher found it helpful (as did the observers) to use a small bell to signal the beginning and end of each separate activity. During Interventions I and 2 the Department Head rarely visited the class as it was felt that such visits might have some effect on the class behavior.

One observation period was considered invalid and not recorded for the following reasons: a) it was the last period of the day, following a school concert and just before a long weekend when most of the pupils throughout the school were unsettled; b) two student teachers were

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substituting for the regular observers, who were absent, and there was considerable disagreement about the observations.

The most significant results of Intervention I as compared with Baseline are briefly: Instances of praise and reprimands were almost reversed, i.e. Baseline averages for praise and reprimands were .6 and 5.2 respectively and for Intervention I they were 5.3 and 1 respectively. The teacher did speak less and more slowly and softly. Disruptive talking dropped from an average of 78% to 22.1% and the frequency dropped from an average of 83 to 9.9.

Intervention 2 -

Reinforcement Procedures -

The reinforcement consisted of points (check-marks) towards a field trip (to a farm and sugar bush). To earn the trip the pupils had to accumulate 100 points (they were promised a half period of games when they earned 50 points) under the following conditions:

a) For every 5 minute interval during which there was no disruptive talking the class received 1 point. Rules about talking were still clearly explained.

b) The class lost 1 point whenever an individual engaged in disruptive talking.

c) The class received 1 bonus point for each individual who did not engage in disruptive talking for an entire period.

A record of progress towards the goal was kept on a clock-like chart on which a hand or pointer could be moved through intervals from 0 to 100. On a separate chart a record was kept of points lost or gained by individuals. The charts were placed within sight of the pupils.

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In the beginning the pupils earned points rather slowly but as time went on and they realized the cost of an interruption, they tried harder; after eleven periods or during period 30 they reached the hundred points and the trip was on.

Though praise was not used in the same way as for Intervention I it was given to the class, by the teacher, whenever points were gained, thus pairing the points with social reinforcement. Disruptive behavior was still ignored during the class, but marked on chart at the end of the period.

Observations Recording Graphing

Again the same observers, forms and procedures were used except the observers had the additional task of moving the pointer when points were gained or lost. The teacher kept a record of pupils losing points or winning bonus points. The data appears in table 3 and a graph in Figure 3.

Implementation

Intervention 2 was implemented on period 20, March 13. The pupils were quite excited about the trip. During this period, though we expected a further decrease in disruptive talking, there was actually a sizeable increase. This was not carried forward to other periods, however, and the overall results of Intervention 2 showed a considerable decrease in disruptive behavior compared with Intervention I. Praise actually decreased from an average of 5.3 to 3.0 the use of reprimands also decreased, from an average of 1.0 to 0.2; the average percent of intervals of disruptive talking fell from 22.1% to 7.8% and the average frequency from 9.9 to 3.5.

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Intervention 2 data compared with Baseline data shows even more striking results; i.e. reprimands decreased from an average of 5.2 to 0.2, praise increased from an average of .6 to 3.0. The average percent of intervals of disruptive talking fell from 78% to 7.8% and the average frequency from 83 to 3.5. Further analysis and comparison of changes in disruptive talking is readily obtained from table 3.

Though it was not the purpose of this study to analyse and modify other inappropriate behavior, it was hoped that a decrease in talking-out behavior might result in improvements in other behaviors. The 4 behaviors observed earlier (Periods 1, 2 and 3) and indicated in table 1, were observed and measured again during periods 27, 28 and 29 and the averages compared with the previous averages in table No. 1A.

TABLE NO. 1A

Behaviors	Averages Periods 1, 2 and 3	Averages Periods 27, 28 and 29
Gross Motor	11.7	.7
Throwing	2.3	0
Agression	.7	0
Turning	10.0	1

Averages of Instances of 4 inappropriate behaviors for 3 periods at the beginning and 3 periods at the end of the study.

Results -

A half hour video tape was made; the first 15 minutes during period 9 (Baseline), and the second 15 minutes during period 30 (the last period). It positively confirms the tremendous changes that took place, over a period of seven weeks, in the class; individual pupils and the teacher.

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Before Intervention I pupils had been sent from this class, almost every period, to the Vice-Principal or Department Head for discipline. During Intervention I and Intervention 2, no pupils were referred from the class.

Table 3 contains the combined observation data from the Baseline periods and Intervention I and 2 periods, which includes, for each of Thirty, 40 minute periods:

The date, morning or afternoon and subject taught;
The number of the observation period;
The percent of the 40 one-minute intervals during which there was disruptive talking;
The frequency of disruptive talking for each period and the number of times the teacher used praise or reprimands.

Means have been calculated for: percent of intervals of disruptive talking, frequency of disruptive talking, and numbers of reprimands and praise, for the Baseline and Interventions I and 2 observations.

Figure 3 contains three graphs (on the same co-ordinates) of the percent of intervals of disruptive talking for the Baseline and each Intervention periods. Comparisons have already been made between the Interventions and between each Intervention and Baseline. The results are further analyzed in the discussion.

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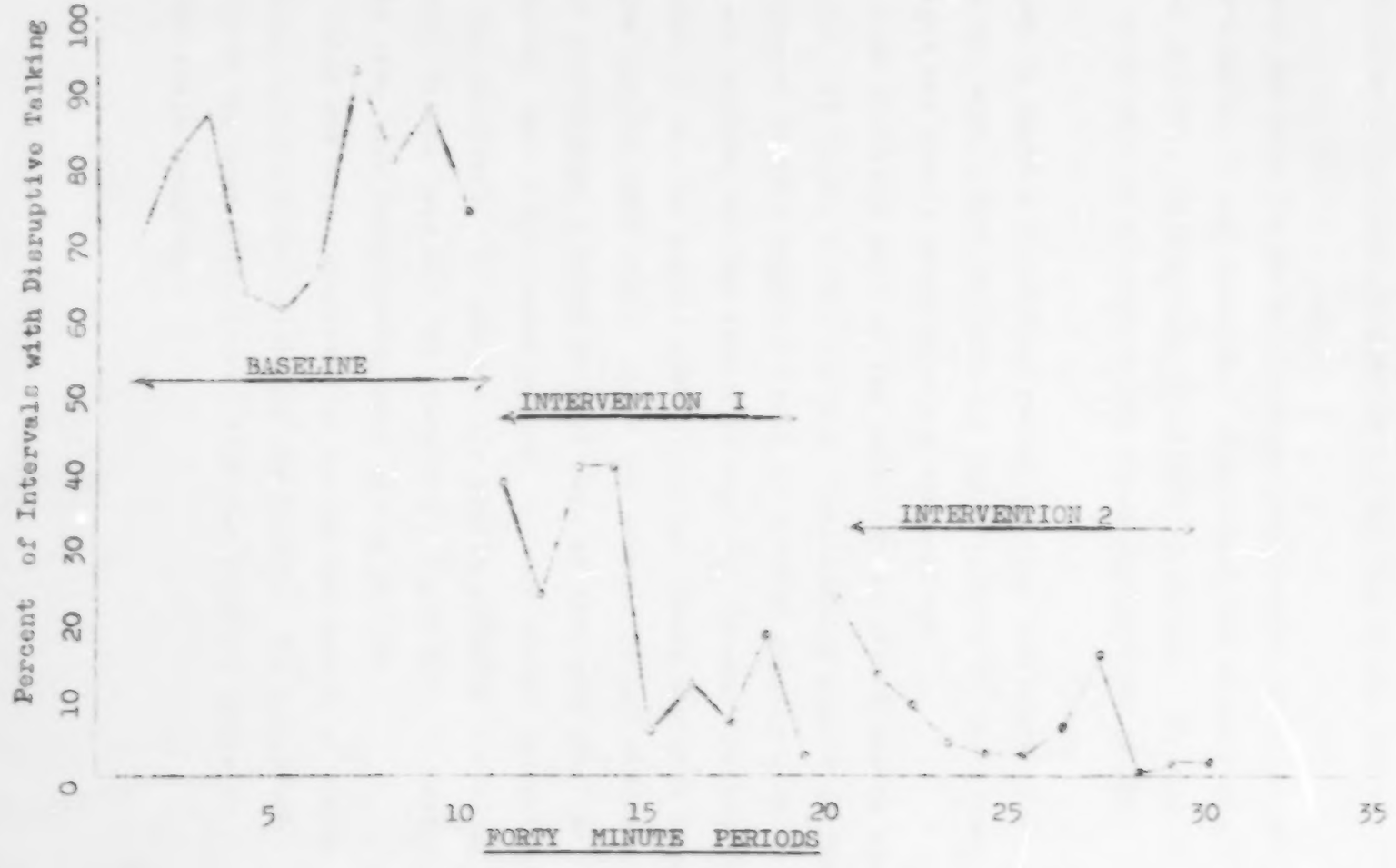
TABLE NO. 3.

	Date, A.M. or P.M. Subjects, Science ss Social studies sc	Observation Periods	% of Intervals of Disruptive talking per 40.Min.period	Frequency of disruptive talking per period	Reprimands	PRAIS
BASELINE	1/2/74 A.M., SC	1	70%	72	5	0
	4/4/74 P.M. SS	2	83%	92	6	0
	5/2/74 A.M. SC	3	88%	98	2	0
	5/2/74 P.M. SS	4	65%	78	5	1
	8/2/74 P.M. SS	5	63%	85	2	0
	11/2/74 A.M. SC	6	68%	-	11	2
	12/2/74 P.M. SC	7	95%	-	7	1
	13/2/74 A.M. SC	8	83%	-	7	1
	13/2/74 P.M. SS	9	90%	-	5	1
	19/2/74 P.M. SS	10	75%	-	2	0
	END BASELINE	MEANS	78%	83	5.2	.6
INTERVENTION NO. 1.	21/2/74 P.M. SC	11	40%	16	0	6
	22/2/74 A.M. SC	12	25%	15	0	7
	22/2/74 P.M. SS	13	42%	17	2	5
	27/2/74 P.M. SS	14	42%	20	3	10
	28/2/74 A.M. SC	15	6%	3	1	6
	1/3/74 P.M. SS	16	13%	5	1	3
	4/3/74 A.M. SC	17	8%	3	0	3
	4/3/74 P.M. SS	18	20%	9	2	3
	11/3/74 A.M. SC	19	3%	1	0	5
	END INTERVENTION I	MEANS	22.1%	9.9	1.0	5.3
INTERVENTION NO. 2.	13/3/74 A.M. SC	20	24%	10	0	1
	13/3/74 P.M. SS	21	14%	6	1	2
	18/3/74 P.M. SS	22	10%	6	1	5
	19/3/74 A.M. SC	23	5%	2	0	3
	20/3/74 P.M. SS	24	3%	1	0	3
	22/3/74 A.M. SC	25	3%	1	0	3
	22/3/74 P.M. SS	26	7%	3	0	2
	27/3/74 P.M. SS	27	16%	8	0	1
	28/3/74 A.M. SC	28	0%	0	0	3
	29/3/74 P.M. SC	29	2%	1	0	5
	1/4/74 A.M. SC	30	2%	1	0	5
	END INTERVENTION 2	MEANS	7.8%	3.5	.2	3.0

Data from Baseline and Interventions I and 2, Observations.

FIGURE NO. 3.


Percent of Intervals with Disruptive Talking
0
10
20
30
40
50
60
70
80
90
100
BASELINE
INTERVENTION I
INTERVENTION 2
5
10
15
20
25
30
35
FORTY MINUTE PERIODS

Teacher's Comments

The Teacher's comments, expressed in her own words, are as follows:

"Within the last few weeks, my relationship with my class has improved immensely. I had found this class, with its great range of intellectual ability, particularly difficult to handle. My lack of confidence in my ability to control the class was obvious to the pupils.

"I used to spend a tremendous amount of time and energy competing with the most active student for the attention of the class; the experience was always exhausting and unrewarding.

"The most difficult task of the experimental period was to ignore interruptions. At first, I felt foolish complimenting pupils on the smallest examples of good behavior (such as sitting quietly with books open and waiting for the lesson to begin). However, phoney this praise sounded to me, the pupils gobbled it up! Those who were busy talking, soon noticed this change in me and started to pay attention.

"After practicing, I began to feel more at ease praising the pupils; however, what I considered praise, was not always recognized as such by the observers. Of course, the pupils probably perceived these comments in the same way and therefore I still have to remind myself to be even more enthusiastic when giving praise.

"The class was most interested in seeing the number of check-marks (showing interruptions) diminish day by day. The pupil who formerly caused the most disturbance, took the greatest pride in improving the chart results.

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"Because I now made more positive comments about the number of points earned, and about how nice the class was when they were quiet, I rarely had to reprimand a pupil.

"I am now far more relaxed while teaching; instead of spending so much time battling with my pupils to establish order, I find that I am actually getting to know them better. They have also changed their attitudes toward me and are now much more respectful. Now that we both have nice things to say to each other the class is more enjoyable for all of us!"

Discussion

Beyond a doubt, the behavioral objective of the study was achieved, disruptive talking was reduced to a minimum and optimum learning was taking place, also other inappropriate behaviors were reduced. The study confirmed that: Clearly stating rules, praising good behavior and ignoring inappropriate behavior, in combination, had highly significant and consistent effects on individual and group behaviors. No attempt was made to measure the effects of the above factors independently; however, other studies have indicated that 'stating rules' alone has little effect and that praise is a powerful reinforcer, e.g. Madsen, Becker and Thomas (1968) state "showing approval for appropriate behavior is probably the key to effective classroom management."

From the teacher's comments it is obvious that the study had a very desirable effect on her behavior, her relationship with the class, her feelings about the pupils and herself, and in short her whole attitude towards teaching these pupils.

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It is also clear that the pupils' attitude towards the teacher have become much more respectful, friendly and accepting; and that she is aware of this. Such positive feedback can not help but reinforce the teacher (so she is also rewarded).

Though the use of check-marks or points towards a tangible reward in Intervention 2 did reduce disruptive talking considerably more than the social reinforcement of Intervention I, we are doubtful that Intervention 2 was necessary to achieve desired results. Intervention I reduced the frequency of disruptive talking from an average of 83 times per 40 minute period to 9.9 times. During the last half (5 periods) of Intervention I the frequency was only 4.2 times per period on the average and the percentage of intervals was reduced to an average of 10%; this is not much different than the results produced by Intervention 2. In short, the basic techniques of Intervention I might be quite sufficient to bring about a desirable level of behavior. Whether it would be a good idea to reduce disruptive talking still further is debateable, especially if it was at the expense of enthusiasm. Hewett points out that "check-marks" and candy are only a small part of the entire design".

There were, undoubtedly, many factors influencing, to varying degrees, the results of the study. Among the more important and obvious were:

(a) The time of day seemed to have a significant effect on behavior. For example, during Intervention I, disruptive talking was considerably less during morning (A.M.) periods. Another study could easily eliminate this apparent variable or attempt to measure its effect.

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(b) Peer pressure was very evident during Intervention 2 and to a considerable degree during Intervention I (see Teacher's comments). The effects of peer pressures warrants further consideration in similar studies.

(c) Class leadership - One boy, with the highest I.Q., proved to be the leader. In this case his influence was positive (see Teacher's comments). The effects of or utilization of a class leader was not contemplated when planning the study, but could be seriously considered in a similar study in the future.

(d) Disruptive talking was, by far, the most serious behavior. A brief analysis of some other behaviors at the beginning and end of the study led to the conclusion that reducing one inappropriate behavior has the effect of reducing others. This is another consideration for future research.

(e) Though the emphasis, in this study, was on consequent events there is reason to believe that preceding stimuli might significantly affect the final results. For instance, when initiating Intervention I and 2, instructions were given repeatedly, and slowly, clearly, and explicitly in a low voice, all of which seemed to have an effect on class attitude and subsequent response. Berman (1973) points out that many behavior modification journals publish a majority of articles that focus entirely on consequent events. A small number of articles mention that anticedent events were manipulated. Wallace and Kauffman (1973) point out the importance of careful preparation of tasks to be presented to children, if other elements of behavior management are to be effective.

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Though the study could well be revised especially to take account of some of the factors mentioned above, the results of the present study far exceeded our expectations and fulfilled those aims set forth in the introduction. We are encouraged to try more behavior modification techniques and procedures with our Special Class pupils.

The Next Step

Even the pupils asked "what will happen after the trip has been earned?", but neither teacher or pupils wish to return to Baseline Conditions nor is there any reason to do so. During Intervention I the class behavior was quite satisfactory and though the pupils are the most disturbed of any in a school of 2800, the class has changed from one of the worst to one of the best. The atmosphere has indeed become warm, friendly and co-operative, without the previous hostilities, tensions and disruptions and real learning is taking place. There is little doubt, that the teacher will be able to maintain the class behavior at a very satisfactory level by returning to the 'explain, praise, ignore' formula and she will do it more comfortably, naturally and with confidence.

Wallace and Kauffman point out that "behavioral gains can be maintained by gradually reducing the frequency of reinforcement, delaying reinforcement, fading from artificial to natural reinforces, and reinforcing self-control behaviors", they further state "Although behavior modification is not a panacea, its effectiveness is supported by more scientific research in the laboratory and classroom than any other approach to behavior management".

APPENDIX I

PRETEST

The teacher had had no practical experience with behavior modification nor did she have any confidence in her ability to use it. She had majored in psychology, however, and was familiar with most of the terms and definitions. As she scored 84% a post-test was considered unnecessary. The results of the study proved her ability to use the techniques.

The Pretest follows:

HOWARD S. BILLINGS REGIONAL HIGH SCHOOL
210 McLeod St. Chateauguay, P.Q.

BEHAVIOR MODIFICATION PROJECT

PRETEST
FOR TEACHERS AND OBSERVERS

TESTING DATE: _____

SCORE: _____ %

SECTION I

Define and/or give example(s) for each of the following terms:

1. Reinforcer:

2. Preceding Stimulus:

3. Extinction:

4. Social Reinforcers:

5. Contingency:

6. Time Out:

7. A Prompt:

8. Baseline:

9. Shaping:

10. Satiation:

11. Cue:

12. Punisher:

13. Unlearned (unconditioned) Reinforcers:

14. Token Reinforcers:

15. Punisher:

SECTION II

Write one Word in each blank -

1. A teacher should parise the child's _____. Not the child.
2. Effective punishment should minimize the need for _____ _____ punishment.
3. A positive contingency contract should offer the child a _____.
4. Differential reinforcement _____ an acceptable response (behavior) but _____ an unacceptable one.
5. A good class may be made into a bad one if the teacher ceases to _____ the children.
6. Rules of contracting state that a contingency contract must be _____ and the terms must be _____.
7. If each response is reinforced then the reinforcement is _____.
8. In teaching new tasks reinforcement should follow _____ after each response.

COUNT 4 POINTS FOR EACH CORRECT ANSWER FOR A POSSIBLE 100 POINTS.

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PHONE 691-1440

July 5th, 1974.

9.7.

Ms. T. Annette Faucher,
Planning Branch,
Department of Education,
1035, rue de la Chevrotière,
Quebec, Quebec. G1A 1H2.

Dear Ms. Faucher:

Enclosed please find two (2) studies in Education by members of this board.

The first - "Exploratory Art" was designed by one of our staff and was successful in having earned a Hilroy Fellowship for the Year 1973-74 as an outstanding curriculum contribution. The Hillroy Fellowship is administered by the Canadian Teachers Federation, Ottawa. I do not know the extent of the publication rights, etc. concerning this curriculum.

The second - "Applying Behavior Modification Techniques in A Class of Emotionally Disturbed High School Boys at Howard S. Billings Regional High School, Chateauguay, Quebec" is a research paper completed by two of our staff. At present McGill University are investigating the possibility of printing the enclosed in the McGill Journal of Education in the Fall of 1974. Again, I am not conversant with the legal obligations concerning publication by the Ministry of Education or organizations other than McGill University.

I trust that you will find the enclosed satisfactory.

Yours truly,

K. Dixon

K.A. Dixon,
Director of Secondary Education.

KAD/lh.
Encl.